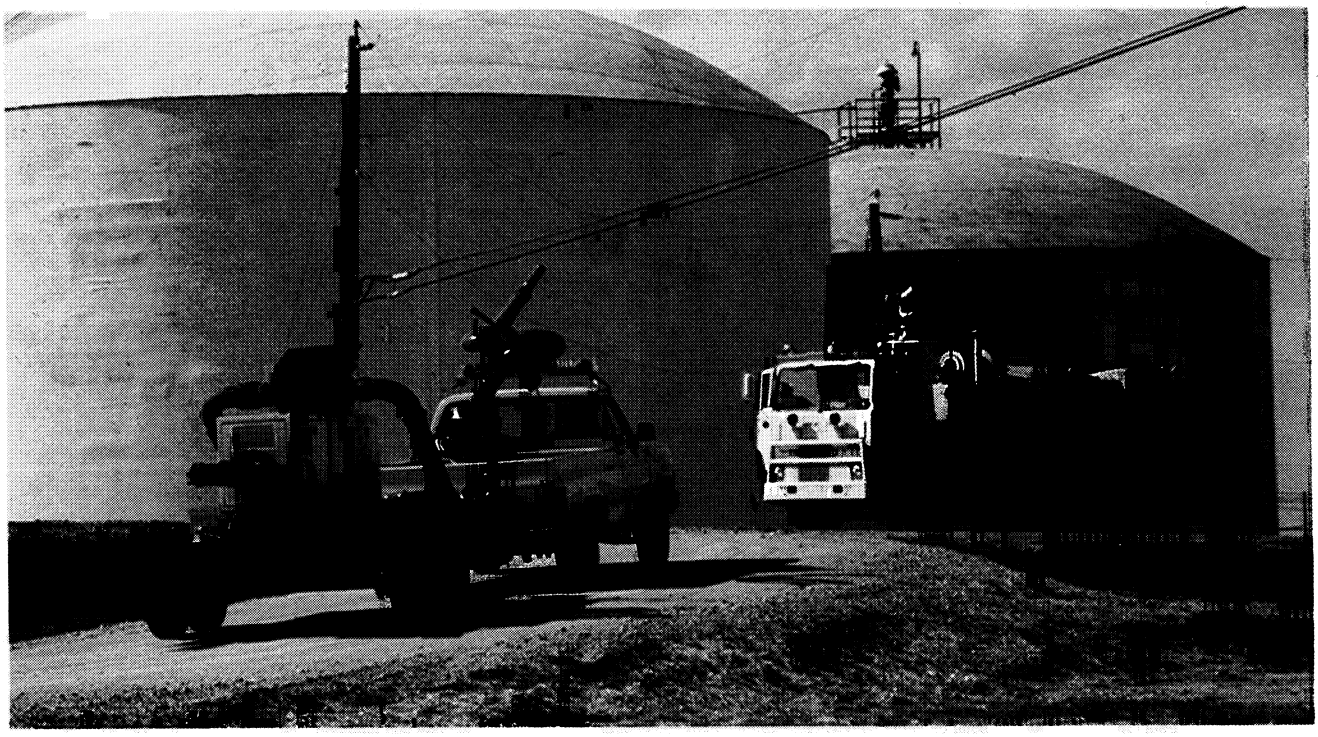

Firefighting Module

A highly versatile NASA-developed mobile firefighting module made its commercial service debut last year at Dow Chemical U.S.A.'s Texas Division, Freeport, Texas. The Dow module—called Firefly II and manufactured by Aviation Power Supply, Inc., Burbank, California—is mounted on a trailer pulled by a pickup truck (above). The trailer unit has two three-inch water "cannons" and the pickup carries a six-inch cannon, compared with the standard 2½-inch hoses used by most fire departments. Completely self-contained, the module pumps 3,000 gallons of water a minute from hydrants or open bodies of water. It can deliver its fire-quenching stream as far as 400 feet (left), or it can be employed in a high-loft mode to reach the tops of tall refinery towers (below left). The photos were taken during a 1980 Firefly demonstration at the Dow facility.

For suppressing ship or waterfront fires at the Freeport marine terminal, the Firefly trailer can be backed onto Dow's specially-built barge fireboat (upper right). Firefly also serves as a backup to the Freeport facility's underground fire main system; should the basic system become inoperable during an emergency, the mobile module could draw water from a pond or canal and feed it to the company's standard fire trucks.

The compact Firefly II weighs only 2,500 pounds when fully fueled but it contains everything needed to fight a fire. The key component is a specially-designed two-stage pump produced for Aviation Power Supply by the Ingersoll-Rand Pump Group. Power for the pump is generated by a gas turbine engine—a derivative of a helicopter engine—built by Detroit Diesel Allison Division of General Motors Corporation. The module also includes an electronic engine/pump controller,

multiple hose connections, up to 1,500 feet of hose, and fuel for four hours operation.

Firefly II is a commercial offshoot of a NASA/Coast Guard program involving development of a lightweight, helicopter-transportable firefighting module for quick response in combating shipboard or harbor fires. In directing the development effort, Marshall Space Flight Center drew upon its aerospace experience in high-capacity rocket engine pumps, lightweight materials, and compact packaging. The pump was developed under Marshall contract by Northern Research and Engineering, Woburn, Massachusetts, a division of Ingersoll-Rand. The Firefly I that emerged from the development program is being tested in demonstrations and regular operational use at St. Louis, Missouri (below) in a program jointly sponsored by NASA, the Maritime Administration and the Coast Guard. Aim of the program is to evaluate the module's effectiveness and cost-reduction potential as an emergency-use system aboard commercial tugboats operating as auxiliary fireboats. The city of Miami is also evaluating the Firefly as a waterborne fire protection system.